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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,549	06/30/2003	J. Christopher Matayabas JR.	42P16901	4992

7590 04/13/2007
Todd M. Becker
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Seventh Floor
12400 Wilshire Boulevard
Los Angeles, CA 90025-1026

EXAMINER

HA, NATHAN W

ART UNIT	PAPER NUMBER
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2814

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/13/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Application No.

10/611,549

Applicant(s)

MATAYABAS ET AL.

Examiner

Nathan W. Ha

<p>Art Unit</p>

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 9 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/07.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Scott et al. (US 5,600,181, newly cited, hereinafter, Scott.)

In regard to claim 1, in fig. 6, for example, Moeller discloses an apparatus comprising:

a die 12 mounted on a substrate 10, the die being connected to the substrate by a plurality of wires, not clearly numbered; and

a mold cap encapsulating the die and the plurality of wires, the mold cap comprising an electrically insulating portion 30 encapsulating substantially all the wires and the die, and a thermally conductive portion epoxy encapsulating substantially all the electrically insulating portion, wherein the thermally conductive material is in direct contact only with the entire part of the surface of the electrically insulating material that is not in contact with the substrate, the die, or the wires.

In regard to claim 2, the die, or IC die, chip, inherently comprises IC circuits. The term die means IC die, Integrated Circuit die, or memory die.

In regard to claim 3, Scott further discloses that the electrically insulating material is a curable resin, epoxy material, for example. See col. 2, lines 40-43.

In regard to claim 5, Scot further discloses that the thermal insulating material is resin curable material, soluble polymer. See col. 2, lines 47-49.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 6, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scott as applied to claims 1-3 and 5 above, and further in view of Distefano (US 6,309,915, previously cited.)

In regard to claims 4 and 6, Scott discloses all of the claimed limitations as mentioned above except the materials of the filler such as silica, metal.

Distefano, in fig. 7, discloses an analogous semiconductor package including a substrate 5, IC die 2 mounted on the substrate, and further discloses filler 3, for example, that comprises highly thermal conductive fillers such as silver, silica, epoxy, etc., in order to prevent the package from overheating since these fillers are highly thermal conductive materials, therefore, heat will be dissipated from the package quickly. See col. 7, line 63- col.8, line 15. These are common fillers, however.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to use fillers as taught by Distefano in Scott's patent in order to dissipate heat from the package, therefore, preventing the package from overheating.

In regard to claim 9, Distefano further discloses a heat dissipation device 10, or heat sink, attached to the package, and in thermal contact with the thermally conductive material, see fig. 4. This heat sink further enhances heat dissipation from the package, and it is very common in the art of semiconductor packaging.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to attach a heat sink to the package as taught by Distefano in order to keep the package under appropriate temperature, and further prevent the package from damage due to overheating.

Response to Arguments

6. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

It is noted that even though claim 9 is rejected in combination under 103(a) as mentioned above to clearly address the claimed limitation such the heatsink device. However, layer 38 as taught by Scott also capable of being a heatsink since it is made of metal material, copper, for example. See also, Scott's col. 2, lines 60-61.

Another newly cited reference 5,998,867 to Jensen et al. also teaches the above limitations under 102(b) since it discloses a double encapsulant 26 and 30 over the chips 22, wires 24, and substrate 12.

Conclusion

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

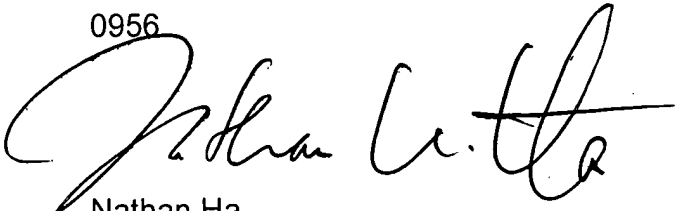
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-

0956

A handwritten signature in black ink, appearing to read "Nathan Ha". The signature is fluid and cursive, with a large initial "N" and a stylized "H".

Nathan Ha
PPE